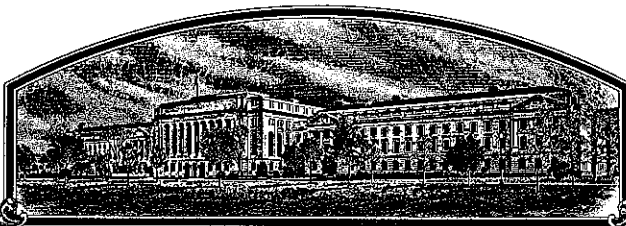


No.



9500030

# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Pioneer Hi-Bred International, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED, PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

**SOYBEAN**

**'9092'**

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of November in the year of our Lord one thousand nine hundred and ninety-five.*

*Attest:*

*M. A. Starnes*

Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*W. J. Feltman*

Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
SCIENCE DIVISIONAPPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(INSTRUCTIONS ON REVERSE)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

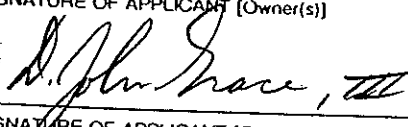
1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) <b>Pioneer Hi-Bred International, Inc.</b>		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO.		3. VARIETY NAME <b>9092</b>	
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) <b>700 Capital Square 400 Locust St. Des Moines, IA 50309</b>		5. PHONE (include area code) <b>(515)270-3582</b>		FOR OFFICIAL USE ONLY	
6. GENUS AND SPECIES NAME <b>Glycine max</b>		7. FAMILY NAME (Botanical) <b>Leguminosae</b>		PVPO NUMBER <b>9500030</b>	
8. CROP KIND NAME (Common Name) <b>Soybean</b>		9. DATE OF DETERMINATION <b>September 1988</b>		Filing and Examination Fee: <b>\$2,325.00</b> Date <b>OCTOBER 27, 1994</b>	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) <b>Corporation</b>		11. IF INCORPORATED, GIVE STATE OF INCORPORATION <b>Iowa</b>		Certificate Fee: <b>\$300.00</b> Date <b>SEPTEMBER 5, 1995</b>	
12. DATE OF INCORPORATION <b>1926</b>		13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS			
John Grace 7300 NW 62nd Ave. PO Box 1004 Johnston, IA 50131-1004		Mike Roth (copy) 700 Capital square, 400 Locust St. Des Moines, IA 50309			

PHONE (include area code):

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)
- a. ☒ Exhibit A, Origin and Breeding History of the Variety
- b. ☒ Exhibit B, Novelty Statement
- c. ☒ Exhibit C, Objective Description of Variety
- d. ☒ Exhibit D, Additional Description of Variety
- e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership
- f. ☒ Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 10/28/94
- g. ☒ Filing and Examination Fee (\$2,325) made payable to "Treasurer of the United States"
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act) ☐ YES (If "YES," answer items 16 and 17 below) ☒ NO (If "NO," skip to item 18 below)
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☐ NO
17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? ☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act. Give date. \_\_\_\_\_) ☒ NO
19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES? ☐ YES (If "YES," GIVE NAMES OF COUNTRIES AND DATES) ☒ NO
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) 	CAPACITY OR TITLE <b>Soybean Research Coordinator</b>	DATE <b>10/21/94</b>
SIGNATURE OF APPLICANT (Owner(s))	CAPACITY OR TITLE	DATE

Pioneer Hi-Bred Int'l, Inc.  
 PVP Application 9092 Soybean  
 March 8, 1994

## EXHIBIT A

## Breeding History of Pioneer Brand 9092 Soybean

Year	Activity
1985 (Summer)	Cross was made between Pioneer Brand 9061 and S15-50.
1985 to 1986	Population was advanced by modified single seed descent.
1987	F5 bulk was planted, single plants were selected and individually threshed.
1988	Seed from individual harvested F5 plants were planted in identified rows. Breeding staff selected the line based on visual appearance from progeny row 5500 in Redwood Falls, Minnesota and designated the line 3981R053.
1989	Preliminary yield trials (test: RFD10900, entry 14) were initiated in Minnesota. Based upon yield performance, the line was advanced to a regional trial in 1990.
1990	Grown in a regional trial as 3986R024 (test: RFA1B100, entry 19). Single plants were pulled from a bulk of the line grown in Redwood Falls, Minnesota during the summer.
1991	Advanced to multi-regional trials as W3986R024 (tests: RFA0L000, NPA0L000). Purification rows derived from single plants harvested in 1990 were grown in Redwood Falls, Minnesota. Offtype sublines discarded.
1992	Second year in wide area tests (designation: Y3986R024; tests: RFA0L000, NPA0L000, NPMC2600, NPMC2800). A 3.5 acre production block (breeder seed) was grown at Redwood Falls, MN.
1993	Third year in wide area tests (designation: XB08C, tests: RFA0E000, NPA0E000, NPVL2600, NPVL2800). A 140 acre parent seed increase (foundation seed equivalent) was grown in Wahpeton, ND.
1994	Based on superior yield performance and multi-race Phytophthora resistance, the line was released as Pioneer Brand 9092.

'9092' has undergone four years of extensive testing and purification. It has been observed by the breeding staff to be uniform and stable for all plant traits from generation to generation, with no evidence of variants.

Pioneer Hi-Bred Int'l, Inc.  
FVP Application 9092 Soybean  
March 8, 1994

Exhibit B: Novelty Statement Concerning 9092 Soybean

To our knowledge, '9092' soybean is most similar to its parent 'S15-50'. 9092 and S15-50 are the only varieties we know of which mature as mid Group I or earlier, and possess purple flowers, gray pubescence, gray hila, and the Rps1C allele for Phytophthora resistance to races 1, 2, 3, 7, 8, and 9.

However, 9092 differs from S15-50 in many ways including the following:

1. 9092 and S15-50 possess different isozyme profiles (Table 1).
2. 9092 matures significantly earlier than S15-50 (Table 2).

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, MEAT, GRAIN & SEED DIVISION  
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) <b>Pioneer Hi-Bred International, Inc.</b>	TEMPORARY DESIGNATION	VARIETY NAME <b>9092</b>
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) <b>700 Capital Square 400 Locust St. Des Moines, IA 50309</b>		FOR OFFICIAL USE ONLY PVPO NUMBER <b>9500030</b>

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

## 1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = &lt; 1.2)

3 = Elongate (L/T ratio &gt; 1.2; T/W = &lt; 1.2)

2 = Spherical Flattened (L/W ratio &gt; 1.2; L/T ratio = &lt; 1.2)

4 = Elongate Flattened (L/T ratio &gt; 1.2; T/W &gt; 1.2)

## ★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) \_\_\_\_\_

## 3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

## ★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

## ★ 5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) \_\_\_\_\_

## ★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

## ★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

## ★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP<sup>1a</sup>)2 = Type B (SP<sup>1b</sup>)

## ★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 266A')

## ★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 2

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 2

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 1

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 31 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☐ 03

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★

☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☐ 1Bacterial Blight (*Pseudomonas glycinea*)

★

☐ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★

☐ 1Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojae*)

★

☐ 0

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

Race 4

☐ 0

Race 5

☐

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microsphaera diffusa*)

★

☐ 1Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★ ☒ 1 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☒ 1 Purple Seed Stain (*Cercospora kikuchii*)
- ☒ 1 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☒ 2 Race 1 ☒ 2 Race 2 ☒ 2 Race 3 ☒ 1 Race 4 ☒ 1 Race 5 ☐ 0 Race 6 ☒ 2 Race 7
- ☒ 2 Race 8 ☒ 2 Race 9 ☒ 2 Other (Specify) 10, 13, 17, 21

## VIRAL DISEASES:

- ☒ 1 Bud Blight (Tobacco Ringspot Virus)
- ☒ 1 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☒ 1 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☒ 1 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☒ 1 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☒ 1 Race 3 ☐ 0 Race 4 ☐ Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arsanaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☒ 1 OTHER DISEASE NOT ON FORM (Specify): White mold (*Sclerotinia sclerotiorum*)

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☒ 1 Iron Chlorosis on Calcareous Soil
- ☐ Other (Specify) \_\_\_\_\_

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	S15-50	Seed Coat Luster	9061
Leaf Shape	S15-50	Seed Size	9041
Leaf Color	9061	Seed Shape	9041
Leaf Size	9061	Seedling Pigmentation	9061

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
9092 Submitted	131.0		46	4.3	8.2	40.3	22.0	11.1	
S15-50 Name of Similar Variety	139.5		57	5.4	9.2	41.6	20.2	12.0	

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



**Exhibit D:**

In Exhibit C we have identified 9092 as susceptible to bacterial blight, brown spot, pod and stem blight, rhizoctonia root rot, bud blight, yellow mosaic, cowpea mosaic, pod mottle, and seed mottle. This does not mean that we consider 9092 to be worse than other varieties of similar maturity in reaction to these challenges. Rather, we do not consider 9092 to be immune to them. Therefore, we have chosen to be conservative and have identified 9092 as "susceptible".

Variety 9092 is a late group 0 variety. If group 0 maturities are divided into tenths, the relative maturity of 9092 is 0.9.

**Exhibit E.**

Variety '9092' was originated and developed by plant breeders from whom, by agreement, Pioneer Hi-Bred International has obtained exclusive rights to protect and market variety '9092'. No rights to such invention, discovery, or development are retained by the plant breeders or by any other party.

8

9500030



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Science and  
Technology  
Division

Plant Variety Protection Office  
NAL Building, Room 600  
10301 Baltimore Blvd.  
Beltsville, MD 20705-2351

December 4, 1995

Dr. John Grace  
Pioneer High-Bred International  
7300 NW 62nd Ave.  
P.O. Box 1004  
Johnston, Iowa 50131-1004

Dear Dr. Grace:

SUBJECT: PVP application no. 9500030, '9204' soybean; Exhibit E, statement of the basis of the applicant's ownership

Before final recommendation for issuance can be made for '9204', certain information needs to be supplied regarding the statement of the basis for ownership. The rights of an applicant to a variety, for plant variety protection purposes, are derived from the original breeder. It is thus necessary to determine the rights that original breeder would have had (or has) under the Plant Variety Protection Act had he or she desired to apply for plant variety protection.

Please supply responses to the following questions:

NOTE: It is not requested nor are you required to reveal the identity of the original breeder.

Is the applicant the original breeder? Yes ☒ No ☐

If no, please answer the following:

a. If original rights to variety were owned by individual(s):  
Is (are) the original breeder(s) a U.S. national(s)? Yes ☐ No ☐

If no, give country \_\_\_\_\_

b. If original rights to variety were owned by company:  
Is the original breeder a U.S. based company? Yes ☐ No ☐

If no, give country \_\_\_\_\_

Sincerely,

Jeffrey L. Strachan, Examiner  
Plant Variety Protection Office  
Telephone: 301-504-5489  
FAX: 301-504-5291

<sup>1</sup> Original breeder may be individual company who directed final breeding. See PVPA §41(a)(2) for definition.



The Agricultural Marketing Service  
is an agency of the  
United States Department of Agriculture

Pioneer Hi-Bred Int'l, Inc.  
 PVP Application 9092 Soybean  
 March 8, 1994

Table 1. Isozyme profiles for 9092 and S15-50.

Variety	Isozyme											
	ACO2	ACO3	ACO4	ACP	DIA	ENP	IDH1	IDH2	MDH	MPI	PGM1	PHI1
Allele Designation												
9092	2	1	1	A	B	A	2	2	B	B	2	1
S15-50	2	1	-	A	A	A	1	1	B	B	2	1

Key:

Aconitase: ACO2, ACO3, ACO4  
 Acid Phosphatase: ACP  
 Diaphorase: DIA  
 Endopeptidase: ENP  
 Isocitrate Dehydrogenase: IDH1, IDH2  
 Malate Dehydrogenase: MDH  
 Mannose 6-Phosphate Isomerase: MPI  
 Phosphoglucomutase: PGM  
 Phosphoglucose Isomerase: PHI

Pioneer Hi-Bred Int'l, Inc.  
FVP Application 9092 Soybean  
March 8, 1994

Table 2. Paired comparison of 9092 versus S15-50 for days to maturity.

All observations are from plots planted using a randomized complete block design. Planted plot length was 21 feet, trimmed to 15 feet. Plot width was 30 inch rows, or 10 feet. Maturity was scored as the number of days from planting until 95% of the pods in the plot were mature. Data was taken in 1993.

Year/Location/Rep		9092 (X1)	S15-50 (X2)	(X1-X2)	(X1-X2) <sup>2</sup>
----- days -----					
1993	106D Rep 1	131.0	139.0	-8.0	64.00
1993	106D Rep 2	131.0	138.0	-7.0	49.00
1993	106D Rep 3	131.0	141.0	-10.0	100.00
1993	106D Rep 4	131.0	140.0	-9.0	81.00
1993	106I Rep 1	133.0	136.0	-3.0	9.00
1993	106I Rep 2	131.0	135.0	-4.0	16.00
1993	106I Rep 3	131.0	136.0	-5.0	25.00
1993	106I Rep 4	134.0	135.0	-1.0	1.00
SUM		1053.0	1100.0	-47.0	344.00
MEAN		131.6	137.5	-5.9 = $\bar{d}$	

N = 8 groups of individuals

$$SE\ DIFF\ (s_{\bar{d}}) = \sqrt{\frac{344 - [(-47)^2/8]}{(8)(7)}} = 1.10$$

$$T = \left| \frac{\bar{d} - s_{\bar{d}}}{s_{\bar{d}}} \right| = \frac{5.9}{1.10} = 5.34, \text{ significant for 7 degrees of freedom at the 0.01 level}$$

//